WHAT IS CLAIMED IS:

1. A computer telephony server comprising:

a first coupling operably connected to a telephone line so as to receive information indicative of at least one internet address associated with a caller on said telephone line;

a second coupling to a protocol stack, said protocol stack operably connected to a link layer interface; and

a computer device operably connected to said first and second couplings, said computer device being operative to route at least one data packet via said second coupling, wherein said link layer interface is operably connected to an internet, and said data packet is addressed so as to be routed to said at least one internet address in said internet.

2. A computer telephony server according to Claim 1 wherein said information is received from said caller over a point-to-point telephone connection provided at least partially by a PSTN.

3. A computer telephony server according to Claim 1 wherein said internet is the Internet, said link layer interface is coupled to said Internet via a connection other than said telephone line, and said internet address is an Internet socket address associated with a process running on a smart telephone associated with said caller.

4. A computer telephony server according to Claim 1, wherein said server further comprises an outbound dialer which is configured to dial said caller to establish a point-to-point telephone connection between said computer telephony server and said caller.

5. A computer telephony server according to Claim 1 wherein said at least one data packet comprises information used to display a menu form to said caller.

6. A computer telephony server according to Claim 5 wherein said computer device is operative to receive at least one data packet from said caller via said internet in response to said menu form.

7. A computer telephony server according to Claim 6 wherein said computer device is operative to receive a data packet from said caller, wherein said data packet is used to increase the amount of time said caller will remain in a call queue.

8. A computer telephony server according to Claim 3 wherein said caller's internet socket address is provided as a part of a caller identification packet received on said telephone line.

9. A computer telephony server according to Claim 3 wherein said caller's Internet socket address is entered using tones by said caller after a call has been established.

10. A computer telephony server according to Claim 3 wherein said caller's Internet socket address is decoded based upon an output of a speech recognition circuit which receives and recognizes words spoken by said caller.

11. A computer telephony server according to Claim 3 wherein said caller's Internet socket address is supplied by a CTI interface residing on said callers telephone, and wherein said telephone is a smart telephone.

12. A computer telephony server comprising:

a first coupling to an external communication network;

a second coupling to a protocol stack, said protocol stack being operative to control the exchange of one or more packets across an internet link layer interface; and

a computer device operably connected to said first and second couplings, said computer device operative receive calls from said first coupling and maintain said calls in at least one call queue, whereby information received via said second coupling may be used to alter the priority of a caller within said at least one call queue.

13. A computer telephony server according to Claim 12, wherein said server further comprises an outbound dialer operative to establish contact with said caller upon the occurrence of a predetermined condition.

14. A computer telephony server according to Claim 12, wherein said alteration of priority includes changing the amount of time the caller must wait in the queue before the call is processed.

15. A computer telephony server according to Claim 13 wherein said first coupling comprises a PSTN telephone line which is operative to receive one or more point-to-point PSTN telephone calls, and wherein said outbound dialer places one or more PSTN telephone calls.

16. A computer telephony server according to Claim 13 wherein said outbound dialer initiates packetized IP phone calls via said protocol stack.

17. A computer telephony server according to Claim 14 wherein said changing is accomplished at least in part by freezing a queue timer.

18. In a computer telephony server, a method of managing a call queue comprising the steps of:

reading data from and writing data to a coupling to a protocol stack, said protocol stack being coupled to a link layer interface, and said link layer interface being coupled to an internet;

accepting inputs from said protocol stack indicative of selections made by a remote user;

transmitting at least one data value via said protocol stack, said at least one data value being indicative of when a response can be expected from said computer telephony server to said caller;

maintaining a call queue which designates the relative priority of callers, wherein information received via said protocol stack from said caller is used to alter the priority of a caller within said call queue; and

dialing a telephone number to establish a telephone connection with said caller when said caller's priority in said call queue has reached a specific value.

19. The method of Claim 18, further comprising the step of:

receiving at least one data segment via a computer-telephony interface, wherein said data segment is used to initiate the establishment of a co-socket, and wherein said computer-telephony interface receives a point-to-point PSTN telephone call from said caller.

20. The method of Claim 18, wherein said dialing involves sending at least one data packet to establish an internet telephony phone call via said internet.

21. A method of establishing a co-socket connection from a requesting end, the method comprising the steps of:

sending a data segment to a telephony interface, said data segment being transmitted from said telephony interface to a remote computer via a telephone connection so as to initiate the establishment of said co-socket; and

communicating utilizing said co-socket with said remote computer, said communicating being performed utilizing a link layer interface different from said telephone connection.

22. The method according to Claim 21 wherein said co-socket is a TCP/IP stream socket established across the Internet.

23. The method according to Claim 21 wherein said telephone connection is a point-to-point PSTN connection.

24. The method according to Claim 21 wherein said data segment is an SYN segment.

25. The method according to Claim 21, wherein said link layer interface is supplied by a DSL carrier, and both said link layer interface and said telephone connection share a single telephone line as a physical layer interface.

26. A method of establishing a co-socket connection comprising the steps of:

receiving a data segment from a requesting end via a computer telephony interface, said telephony interface receiving said data segment from a remote computer via a telephone connection;

initiating the establishment of said co-socket in response to said receipt of said data segment; and

communicating utilizing said co-socket with said remote computer, said communicating being performed utilizing a link layer interface different from said telephone connection.

27. The method according to Claim 26 wherein said co-socket is a TCP/IP stream socket established across the Internet.

28. The method according to Claim 26 wherein said telephone connection is a point-to-point PSTN connection, and said data segment is an SYN segment.

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29. A smart telephone comprising:

a computer telephony interface operative to initiate a telephone connection;

a dialer coupled to said computer telephony interface, said dialer operative to dial a telephone number to initiate the establishment of said telephone connection;

a network interface coupled to a link layer interface other than said telephone connection; and

a computer module which initiates the establishment of a co-socket with a remote device by transmitting a data segment via said telephone connection, wherein said computer module subsequently communicates using said co-socket via said network interface.

30. A smart telephone according to Claim 29 wherein said co-socket is a TCP/IP stream socket established via said Internet.

31. A smart telephone according to Claim 29 wherein said telephone connection is a point-to-point PSTN connection.

32. A smart telephone according to Claim 29 wherein said co-socket comprises an H.323 voice and/or video connection.

33. A smart telephone comprising:

a coupling to a database, wherein said smart phone initiates a query to said database to determine whether a database record exists which associates a telephone number to an internet address;

an outbound dialer operative to initiate a telephone call to said telephone number;

a first computer module operative to interact with a protocol stack to send at least one data packet to said internet address; and

a second computer module responsive to information returned by said database, said computer module directing said smart telephone to selectively perform at least one function including:

(i) initiating a PSTN telephone call to said telephone number using said outbound dialer; and

(ii) initiating an internet connection with a computer associated with said telephone number using said module.

34.   A smart telephone according to Claim 33 wherein said database is located remotely from said smart telephone.

35.   A smart telephone according to Claim 33 wherein said internet connection comprises an Internet telephony connection.

36.   An application program used in conjunction with a smart telephone, comprising:

a coupling to a database, wherein said application program initiates a query to said database via said coupling to determine whether a database record exists which associates a telephone number to an internet address;

a coupling to a CTI interface telephone dialing software module, said CTI interface telephone dialing software module being operative to initiate a telephone call to said telephone number;

a first software module operative to interact with a protocol stack, said stack sending a data packet to said internet address; and

a second software module responsive to information returned by said database, wherein said second software module selectively executes at least one function including:

(i) initiate a PSTN telephone call to said telephone number using said outbound dialer; and

(ii) initiate an internet connection with a computer associated with said telephone number using said first software module.

37.   The application program of Claim 36 wherein said database is located remotely from said smart telephone.

38.   The application program of Claim 36 wherein said internet connection comprises an Internet telephony connection.

39.   An internet server comprising:

a coupling to an internet wherein said coupling receives a client request from said internet including information relating to a telephone number;

a database which associates said request with an internet address; and

a reply module connected to said coupling and operative to return a data packet via said coupling to said internet upon association of said request with said internet address, said data packet further being related to said internet address.

40.   An internet server according to Claim 39, wherein said data packet also contains information indicative of whether said client should establish;

      (i) a PSTN telephone call, or

      (ii) both a PSTN telephone call and a co-socket, or

      (iii) an internet connection.

41.   A sockets-telephony API software library comprising:

a co-socket connection establishment function comprising:

      (i) a first software module coupled to a telephone connection, said first software module being operative to direct information to be transmitted and/or received via said telephone connection; and

      (ii) a second software module coupled to said first software module and coupled to a co-socket data structure which is visible to said function, said second software module being operative to communicate with a remote computer by transmitting and/or receiving at least one data segment in a co-socket establishment sequence, said second software module also causing said first software module to be run so said at least one data segment is routed via said telephone connection;

      wherein once said co-socket connection is established, subsequent communication may proceed between a process owning said-co-socket data structure and a process located on said remote computer via a link layer interface other than said telephone connection.

42.   A sockets-telephony API according to Claim 41, wherein said co-socket connection establishment function is a connect function, said connect function further comprising:

a first input parameter which relates to said co-socket data structure and which makes said co-socket data structure visible to said connect function;

a second input parameter which relates to a telephone number; and

a third software module which accepts said second input parameter and is coupled to a telephone line, said third software module being operative to direct said telephone number to be dialed to initiate the establishment of said telephone connection.

43. A sockets-telephony API according to Claim 41, wherein said co-socket connection establishment function is a listen function, said listen function further comprising:

a first input parameter which relates to said co-socket data structure and which makes said co-socket data structure visible to said listen function;

wherein said second software module is activated in response to an incoming call initiated by said remote computer, and said telephone connection comprises said incoming call.

44. An application program which accesses an API software library function, said API software library function comprising a co-socket connection establishment function, said co-socket establishment function further comprising:

(i) a first software module coupled to a telephone connection, said first software module being operative to direct information to be transmitted and/or received via said telephone connection; and

(ii) a second software module coupled to said first software module and coupled to a co-socket data structure which is visible to said function, said second software module being operative to communicate with a remote computer by transmitting and/or receiving at least one data segment in a co-socket establishment sequence, said second software module also causing said first software module to be run so said at least one data segment is routed via said telephone connection;

wherein once said co-socket connection is established, subsequent communication may proceed between a process owning said-co-socket data structure and a process located on said remote computer via a link layer interface other than said telephone connection.

45. An operating system comprising for use on a smart telephone with a computer telephony interface to a telephone line, the operating system comprising:

an operating system kernel used to support at least one application program;

at least one protocol stack process;

a co-socket connection establishment API function used to provide an interface between said application program and said protocol stack process, and between said application program and said computer telephony interface, said co-socket connection establishment API function comprising:

(i) a first software module coupled to a telephone connection, said first software module being operative to direct information to be transmitted and/or received via said telephone connection; and

(ii) a second software module coupled to said first software module and coupled to a co-socket data structure which is visible to said function, said second software module being operative to communicate with a remote computer by transmitting and/or receiving at least one data segment in a co-socket establishment sequence, said second software module also causing said first software module to be run so said at least one data segment is routed via said telephone connection;

wherein once said co-socket connection is established, subsequent communication may proceed between a process owning said-co-socket data structure and a process located on said remote computer via a link layer interface other than said telephone connection.

46. An operating system according to Claim 45, wherein said protocol stack utilizes a transport control protocol/internet protocol (TCP/IP).

47. A computer system controlled by an operating system, said computer system comprising:

a central processing unit;

a computer telephony interface coupled to said central processing unit and including a coupling to a communication interface capable of receiving a point-to-point telephone connection;

a network interface coupled to said central processing unit, said network interface coupled to a link layer interface which provides a connection to an internet;

a storage module coupled to said central processing unit, said storage module operative to store an operating system software and at least one application program, said operating system software further comprising:

an operating system kernel used to support at least one application

5   program;

at least one protocol stack process;

a co-socket connection establishment API function used to provide an interface between said application program and said protocol stack process, and between said application program and said computer telephony interface, said co-socket

10   connection establishment API function comprising:

(i) a first software module coupled to a telephone connection, said first software module being operative to direct information to be transmitted and/or received via said telephone connection; and

(ii) a second software module coupled to said first software module

15   and coupled to a co-socket data structure which is visible to said function, said second software module being operative to communicate with a remote computer by transmitting and/or receiving at least one data segment in a co-socket establishment sequence, said second software module also causing said first software module to be run so said at least one data segment is routed via said telephone connection;

20   wherein once said co-socket connection is established, subsequent communication may proceed between a process owning said-co-socket data structure and a process located on said remote computer via a link layer interface other than said telephone connection.

48.   A computer operating system comprising:

25   a first link layer interface coupled to a telephone connection;

a second link layer interface coupled to a network connection;

a first input which carries information relating to a socket data structure associated with a process;

a second input which carries information relating to a telephone connection;

a protocol stack coupled to said first and said second inputs and to said first and said second link layer interfaces, said protocol stack being operative to send and or receive at least one data segment over said first link layer interface to establish a connection associated with said co-socket data structure, said connection being used to

5 communicate with a remote computer via said second link layer interface.

49. A computer program comprising:

a coupling used to establish a PSTN telephone connection via a computer telephony interface API;

a coupling to a network via a network interface API;

10 a software module operative to initiate a point-to-point PSTN telephone connection to a remote station using said computer telephony API;

a software module operative to send a SYN segment to said remote station via said point-to-point PSTN telephone connection using said computer telephony interface API to establish a co-socket; and

15 a software module operative to accept information from a local data buffer, perform application layer formatting of said data, and transmit said formatted application layer data to said remote station via said network interface API.

50. A computer program according to Claim 49, wherein said local data buffer couples display information used to generate a display of information on a screen of said

20 remote station.

51. A computer program according to Claim 49, wherein said local data buffer couples a data used in a data conference with one or more remote users.

52. In a computer operating system, a method of sharing information with a remote computer, the method comprising the steps of:

25 intercepting information contained within an information stream transmitted from a first local process to a second local process;

making a copy of said information;

allowing said original information stream to reach said second local process; and

passing at least some of said copied information to a protocol stack process which in turn forwards said information to said remote computer via a co-socket associated with a PSTN telephone call.

53.   An apparatus coupled to a telephone switch, said apparatus comprising:

a translation unit which receives ANI data and translates information relating to a caller's internet socket address;

a module which places said information relating to said caller's internet socket address into a data packet for transmission to a dialed telephone number;

wherein said internet socket address includes a port number to enable a callee to send a screen of information via an internet to be displayed on said caller's computer screen.

54.   An apparatus according to Claim 53, further comprising:

an internet connection operative to receive said caller's internet socket address for use in translating said ANI data to an active internet socket address presently involved in an internet connection.

55.   An apparatus according to Claim 53, further comprising:

an internet connection operative to receive said caller's internet socket address for use in translating said ANI data to an active internet socket address presently involved in an internet connection.

56.   An apparatus according to Claim 54, wherein said module selectively places said caller's socket address information only if said caller is actively connected to said internet.

57.   In a telecommunications network used to process calls to provide communications between a caller and a callee, apparatus comprising:

a first coupling, said first coupling used to receive dialed number information associated with said callee and ANI information associated with said caller;

a second coupling, said second coupling providing connectivity to an internet;

a database containing a set of mappings between telephone numbers and internet socket addresses; and

a module which:

(i) receives via said first coupling a dialed destination telephone number associated with a call from a caller and ANI information associated with said caller,

(ii) compares said dialed number to a list of numbers stored in said database,

(iii) compares said ANI data to said list of numbers stored in said database,

5   (iv) uses information found in said database to translate said dialed number to a first internet socket address and said caller's ANI number to a second internet socket addresses, and

(v) sends a data packet to said first internet socket address with information indicative of said second internet socket address.

10   58.   A method of processing telephone calls within a telephone network comprising the steps of:

obtaining a caller's telephone number by analyzing ANI related information from an information stream;

performing a database query to determine whether an active client internet socket

15 is associated with said caller's telephone number; and

forwarding a PSTN data packet comprising said active internet socket address if an active socket address is determined, wherein said active socket address is used to send information from a device controlled by a callee to a device controlled by said caller.

    59.   A method of establishing a co-socket connection, the method comprising

20   the steps of:

reading CLID information received from a telephone connection, said information being associated with an incoming call received over said telephone connection;

sending a data packet directed to an internet address, said internet address being related to said information.

25   60.   The method of Claim 59 further comprising the step of:

translating said information to said internet address by performing a database translation.

61.   The method of Claim 59 wherein said step of sending involves directing said data packet over a link layer interface other than said telephone connection.